

### ***Remarks***

Reconsideration of the application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-9 are pending in the application. These changes are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

### ***Summary of objections and claim Rejections***

The disclosure was objected to because of informalities related to the cross reference to related applications.

Claims 1 – 9 were rejected under 35 U.S.C. 112, second paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claim invention. Specifically, the Examiner stated that the “second layer” has a “dielectric constant less than 30” was not explicitly disclosed in the original specification.

Claims 1 - 9 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite as the claims appear to define the embodiment of the waveguide of FIG. 10 which was the subject matter of a divisional application.

Claims 3, was objected to as containing unnecessary “can” verbiage.

Claims 6 and 9 were required to be modified to subscript the chemical compositions.

***Response to each objection and claim Rejection***

*The disclosure was objected to because of informalities related to the cross reference to related applications.*

The cross reference to related applications was modified pursuant to Examiners objection to avoid confusion. If the placement of the patent information relating to status of the provisional application is still confusing to the Examiner, Applicant invites Examiner to suggest changes and Applicant is amicable to Examiner's amendment to facilitate allowance of the present application. With this amendment, the objection is believed to be traversed.

*Claims 1 – 7 were rejected under 35 U.S.C. 112, second paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claim invention. Specifically, the Examiner stated that the "second layer" has a "dielectric constant less than 30" was not explicitly disclosed in the original specification.*

Specific support in the original application for a dielectric constant for said second layer is found on page 8, line 15, wherein the specification provides, "For the purpose of this invention, high dielectric materials have a dielectric constant greater than

about 100, and low dielectric materials have a dielectric constant lower than about 30.” Further, on page 8, line 11, the disclosure provides, “The laminated dielectric material structure of the present invention can provide certain overall dielectric constants and tunability by laminating high dielectric constant, high tunability materials with low dielectric constant tunable or non-tunable.” Low dielectric constant as mentioned above, can be lower than about 30. Still further, on page 8, line 5, the disclosure states, “a laminated structure 10”” similar to that of FIG. 1...”, and FIG. 1 is elaborated on at line 17, page 8 through page 10, line 25 illustrating in great detail dielectric constant properties, both high and low.

*Claims 1 - 7 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite as the claims appear to define the embodiment of the waveguide of FIG. 10 which was the subject matter of a divisional application.*

Modified claim 1 more clearly characterizes the present invention as the coplanar line set forth in FIG. 9. Further, the multi-layered stack aspect of the present invention was more clearly claimed in new claim 1 and includes the vertical nature of the stacking of the parallel slabs of dielectric material.

Further, throughout the claims “dielectric layers” was replaced with “first and second rectangular slabs”. Also, the vertical multilayer stack now has appropriate antecedent basis to avoid confusion on which stack is being referenced.

In maintaining and more clearly claiming the vertical multi-layer stack feature, the reasoning set forth regarding the prior art cited in the first office action of the present

invention should still hold true and traverse the 103 rejection therein. For ease of review by the Examiner, the reasoning set forth in the previous office action is provided immediately below:

“The present invention, as described in claims 1-7, provides a structure having an overall relatively low dielectric constant, but retaining desirable high tunability and low loss characteristics in the multilayered stack structure..

This configuration is a multi-layer stack of dielectric. This multilayer is not disclosed nor claimed in Barnes. This stack is what will give the coplanar line its superior properties. Further, Barnes is very specific in his configuration not only is it NOT a multilayer, it is only thin film BST. All the materials in the Paratek invention herein are combinations of materials as opposed to Barnes.

Thus, Barnes discloses a phased array antenna for microwave and millimeter wave applications, using either microstrip line, coplanar waveguide, or other construction techniques incorporating a solid dielectric transmission line. He uses continuously variable phase delay structure which is used to control the beam pattern of the phased array antenna which can be applied to the construction of resonant frequency tunable coplanar waveguide antennas and impedance tunable quarter-wave transformers. In Barnes, the propagation constant of the transmission line is directly proportional to the square root of the effective dielectric constant (assuming a lossless dielectric) and thus an array of multiple antenna elements provided can feed the structure using the disclosed transmission lines and the direction of the resultant main beam of the array can be made to vary over a complete half-sphere.

Consequently, as mentioned above, Barnes neither discloses nor suggests that the stacked layer of dielectric material and that it could be greater than 100 and less than 30 respectively. Barnes does provide for a phased array antenna for microwave and millimeter wave applications and discloses differing dielectric constants, but the material and positioning of the layers would not enable a structure that has an overall relatively low dielectric constant, but retains desirable high tunability and low loss characteristics in the manner of the present invention."

*Claims 3, was objected to as containing unnecessary "can" verbiage.*

"Can" was deleted in claim 3. Thus, this objection is believed to be traversed.

*Claims 6 and 9 were required to be modified to subscript the chemical compositions.*

Claims 6 and 9 have been modified to include subscripts in the chemical compositions. Thus, this objection is believed to be traversed.

***Response to nonstatutory double patenting rejection***

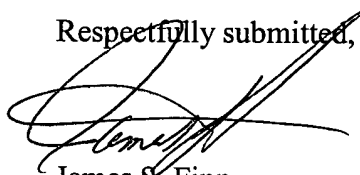
In response to this rejection, please find enclosed a terminal disclaimer in compliance with 37 C.F.R. 1.321 (C), signed by the attorney of record as allowed by 37 C.F.R. 3.73 (b). Consequently, it is believed this rejection is properly traversed.

### ***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reasons, that personal communication will expedite prosecution of this application the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,



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